BOX PATENT APPLICATION
Attorney Docket No. 23057-XY

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

PATIERNO et al.

Filed: January 23, 2002

For: **UTEROGLOBIN GENE THERAPY FOR EPITHELIAL CELL CANCER**

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Before action in this application and before calculation of the filing fee, please amend the above identified application as follows:

IN THE SPECIFICATION

Page 1, please replace lines 4-9 with the following:

--This application is a continuation of U.S. Patent Application No. 08/987,502 and U.S. Patent Application No. 09/556,467, which is a divisional of U.S. Patent Application Serial Number 08/966,196, filed November 7, 1997, issued as U.S. Patent No. 6,054,320 on April 25, 2000, which is a divisional of U.S. Patent Application Serial Number 08/658,796, filed June 5, 1996, issued as U.S. Patent No. 5,935,860 on August 10, 1999, which is a Continuation in Part of U.S. Patent Application Serial Number 08/486,203, filed June 7, 1995, issued as U.S. Patent No. 5,830,640 on November 3, 1998, which is a Continuation in Part of U.S. Patent Application Serial Number 08/400,084, filed March 7, 1995, issued as U.S. Patent No. 5,696,092 on December 9, 1997, the entirety of all of which are

incorporated by reference herein."--.

IN THE CLAIMS

Please cancel claims 1-73.

Please add the following new claims:

--74. A method for inhibiting tumorigenesis of a tumor of epithelial cell origin, comprising *in vivo* administration in a vector, to a mammal, of a polynucleotide sequence which encodes a uteroglobin.

75. The method of claim 74, wherein the polynucleotide sequence encodes human uteroglobin.

76. The method of claim 74, wherein the polynucleotide sequence is selected from the group consisting of an RNA, a DNA, a DNA cloned in a DNA vector, and a DNA cloned in a DNA vector and encapsidated in a viral capsid.

77. The method of claim 76, wherein the polynucleotide sequence is a DNA.

78. The method of claim 74, wherein the vector is a viral vector.

79. The method of claim 74, wherein the administration of the polynucleotide sequence inhibits invasion of the tumor.

80. The method of claim 74, wherein the tumor is a tumor of epithelial cell origin.

81. The method of claim 80, wherein the tumor is selected from the group consisting of a breast, lung, colon, bladder, prostate, gastrointestinal track, endometrium, tracheal-bronchial

tract, pancreas, liver, uterus, nasopharynges, and skin tumor.

82. The method of claim 81, wherein the tumor is a prostate tumor.

83. The method of claim 74, wherein the polynucleotide sequence is administered in combination with another treatment.

84. The method of claim 83, wherein the other treatment is selected from the group consisting of surgical intervention, radiation therapy, hormonal therapy, immunotherapy, chemotherapy, cryotherapy, and gene therapy.

85. A method of inhibiting primary tumor cell growth in a tumor of epithelial cell origin, comprising *in vivo* administration in a vector, to a mammal, of a polynucleotide sequence which encodes a uteroglobin.

86. The method of claim 85, wherein the administration of the polynucleotide sequence prevents the primary tumor cells from damaging surrounding lymph or circulatory systems.

87. The method of claim 86, wherein shed cells from the primary tumor cells are prevented from entering into the lymph or circulatory systems.

88. The method of claim 85, wherein the polynucleotide sequence encodes human uteroglobin.

89. The method of claim 85, wherein the polynucleotide sequence is selected from the group consisting of an RNA, a DNA, a DNA cloned in a DNA vector, and a DNA cloned in a DNA vector and encapsidated in a viral capsid.

90. The method of claim 89, wherein the polynucleotide sequence is a DNA.

91. The method of claim 85, wherein the vector is a viral vector.

92. The method of claim 85, wherein the primary tumor cells are of a tumor of epithelial cell origin.

93. The method of claim 92, wherein the tumor is selected from the group consisting of a breast, lung, colon, bladder, prostate, gastrointestinal track, endometrium, tracheal-bronchial tract, pancreas, liver, uterus, nasopharynges, and skin tumor.

94. The method of claim 93, wherein the tumor is a prostate tumor.

95. The method of claim 85, wherein the polynucleotide sequence is administered in combination with another treatment.

96. The method of claim 95, wherein the other treatment is selected from the group consisting of surgical intervention, radiation therapy, hormonal therapy, immunotherapy, chemotherapy, cryotherapy, and gene therapy.

97. A method of interfering with invasion of a local extracellular matrix by tumor cells in a tumor of epithelial cell origin, comprising *in vivo* administration in a vector, to a mammal, of a polynucleotide sequence which encodes a uteroglobin.

98. The method of claim 97, wherein the polynucleotide sequence encodes human uteroglobin.

99. The method of claim 97, wherein the polynucleotide sequence is selected from the group consisting of an RNA, a DNA, a DNA cloned in a DNA vector, and a DNA cloned in a DNA vector and encapsidated in a viral capsid.

100. The method of claim 99, wherein the polynucleotide sequence is a DNA.

101. The method of claim 97, wherein the vector is a viral vector.

102. The method of claim 97, wherein the tumor cells are of a tumor of epithelial cell origin.

103. The method of claim 102, wherein the tumor is selected from the group consisting of a breast, lung, colon, bladder, prostate, gastrointestinal track, endometrium, tracheal-bronchial tract, pancreas, liver, uterus, nasopharynges, and skin tumor.

104. The method of claim 103, wherein the tumor is a prostate tumor.

105. The method of claim 97, wherein the polynucleotide sequence is administered in combination with another treatment.

106. The method of claim 105, wherein the other treatment is selected from the group consisting of surgical intervention, radiation therapy, hormonal therapy, immunotherapy, chemotherapy, cryotherapy, and gene therapy.

107. A method of inhibiting tumor-induced angiogenesis of a tumor of epithelial cell origin, comprising *in vivo* administration in a vector, to a mammal, of a polynucleotide sequence which encodes a uteroglobin.

108. The method of claim 107, wherein the polynucleotide sequence encodes human uteroglobin.

109. The method of claim 107, wherein the polynucleotide sequence is selected from the group consisting of an RNA, a DNA, a

DNA cloned in a DNA vector, and a DNA cloned in a DNA vector and encapsidated in a viral capsid.

110. The method of claim 109, wherein the polynucleotide sequence is a DNA.

111. The method of claim 107, wherein the vector is a viral vector.

112. The method of claim 107, wherein the tumor is a tumor of epithelial cell origin.

113. The method of claim 112, wherein the tumor of epithelial cell origin is a sarcoma.

114. The method of claim 112, wherein the tumor is selected from the group consisting of a breast, lung, colon, bladder, prostate, gastrointestinal track, endometrium, tracheal-bronchial tract, pancreas, liver, uterus, nasopharynges, and skin tumor.

115. The method of claim 114, wherein the tumor is a prostate tumor.

116. The method of claim 107, wherein the polynucleotide sequence is administered in combination with another treatment.

117. The method of claim 116, wherein the other treatment is selected from the group consisting of surgical intervention, radiation therapy, hormonal therapy, immunotherapy, chemotherapy, cryotherapy, and gene therapy.

118. A method of inhibiting or decreasing the activity of metalloproteinases required for degradation of an extra cellular matrix to inhibit invasion of tumor cells, comprising *in vivo* administration in a vector, to a mammal, of a polynucleotide

sequence which encodes a uteroglobin.

119. The method of claim 118, wherein the polynucleotide sequence encodes human uteroglobin.

120. The method of claim 118, wherein the polynucleotide sequence is selected from the group consisting of an RNA, a DNA, a DNA cloned in a DNA vector, and a DNA cloned in a DNA vector and encapsidated in a viral capsid.

121. The method of claim 120, wherein the polynucleotide sequence is a DNA.

122. The method of claim 118, wherein the vector is a viral vector.

123. The method of claim 118, wherein the tumor cells are of a tumor of epithelial cell origin.

124. The method of claim 123, wherein the tumor is selected from the group consisting of a breast, lung, colon, bladder, prostate, gastrointestinal track, endometrium, tracheal-bronchial tract, pancreas, liver, uterus, nasopharynges, and skin tumor.

125. The method of claim 124, wherein the tumor is a prostate tumor.

126. The method of claim 118, wherein the polynucleotide sequence is administered in combination with another treatment.

127. The method of claim 126, wherein the other treatment is selected from the group consisting of surgical intervention, radiation therapy, hormonal therapy, immunotherapy, chemotherapy, cryotherapy, and gene therapy.

128. A method of treating prostate cancer, comprising *in vivo*

administration in a vector, to a mammal, of a polynucleotide sequence which encodes a uteroglobin.

129. The method of claim 128, wherein the polynucleotide sequence encodes human uteroglobin.

130. The method of claim 128, wherein the polynucleotide sequence is selected from the group consisting of an RNA, a DNA, a DNA cloned in a DNA vector, and a DNA cloned in a DNA vector and encapsidated in a viral capsid.

131. The method of claim 130, wherein the polynucleotide sequence is a DNA.

132. The method of claim 128, wherein the vector is a viral vector.

133. The method of claim 128, wherein the polynucleotide sequence is administered in combination with another treatment.

134. The method of claim 133, wherein the other treatment is selected from the group consisting of surgical intervention, radiation therapy, hormonal therapy, immunotherapy, chemotherapy, cryotherapy, and gene therapy.

135. A method for preventing or inhibiting metastasis of a cancer, comprising *in vivo* administration in a vector, to a mammal, of a polynucleotide sequence which encodes a uteroglobin.

136. The method of claim 135, wherein the polynucleotide sequence encodes human uteroglobin.

137. The method of claim 135, wherein the polynucleotide sequence is selected from the group consisting of an RNA, a DNA, a DNA cloned in a DNA vector, and a DNA cloned in a DNA vector and

encapsidated in a viral capsid.

138. The method of claim 137, wherein the polynucleotide sequence is a DNA.

139. The method of claim 135, wherein the vector is a viral vector.

140. The method of claim 135, wherein the cancer is a cancer of epithelial cell origin.

141. The method of claim 140, wherein the cancer is selected from the group consisting of breast, lung, colon, bladder, prostate, gastrointestinal track, endometrium, tracheal-bronchial tract, pancreas, liver, uterus, nasopharynges, and skin cancer.

142. The method of claim 141, wherein the cancer is prostate cancer.

143. The method of claim 135, wherein the polynucleotide sequence is administered in combination with another treatment.

144. The method of claim 143, wherein the other treatment is selected from the group consisting of surgical intervention, radiation therapy, hormonal therapy, immunotherapy, chemotherapy, cryotherapy, and gene therapy.

145. A method for repairing a dysfunctional gene to prevent or inhibit metastasis of a cancer, comprising *in vivo* administration in a vector, to a mammal, of a polynucleotide sequence which encodes a uteroglobin.

146. The method of claim 145, wherein the polynucleotide sequence encodes human uteroglobin.

147. The method of claim 145, wherein the polynucleotide

sequence is selected from the group consisting of an RNA, a DNA, a DNA cloned in a DNA vector, and a DNA cloned in a DNA vector and encapsidated in a viral capsid.

148. The method of claim 147, wherein the polynucleotide sequence is a DNA.

149. The method of claim 145, wherein the vector is a viral vector.

150. The method of claim 145, wherein the cancer is a cancer of epithelial cell origin.

151. The method of claim 150, wherein the cancer is selected from the group consisting of breast, lung, colon, bladder, prostate, gastrointestinal track, endometrium, tracheal-bronchial tract, pancreas, liver, uterus, nasopharynges, and skin cancer.

152. The method of claim 151, wherein the cancer is prostate cancer.

153. A method for inhibiting tumorigenesis of a tumor, comprising the steps of:

a) removing cells of the tumor from a patient,

b) introducing to the removed tumor cells, in a vector, a polynucleotide sequence which encodes a uteroglobin,

c) selecting the removed tumor cells that have incorporated the polynucleotide, and

d) introducing the selected cells into the patient.

154. The method of claim 153, wherein the polynucleotide sequence encodes human uteroglobin.

155. The method of claim 153, wherein the polynucleotide

sequence is selected from the group consisting of an RNA, a DNA, a DNA cloned in a DNA vector, and a DNA cloned in a DNA vector and encapsidated in a viral capsid.

156. The method of claim 155, wherein the polynucleotide sequence is a DNA.

157. The method of claim 153, wherein the polynucleotide sequence is administered to the removed tumor cells using cationic lipids, liposomes, or vectors.

158. The method of claim 157, wherein the vector is a viral vector.

159. The method of claim 153, wherein the tumor is a tumor of epithelial cell origin.

160. The method of claim 159, wherein the tumor is selected from the group consisting of a breast, lung, colon, bladder, prostate, gastrointestinal track, endometrium, tracheal-bronchial tract, pancreas, liver, uterus, nasopharynges, and skin tumor.

161. The method of claim 160, wherein the tumor is a prostate tumor.

162. The method of claim 153 in combination with another treatment.

163. The method of claim 162, wherein the other treatment is selected from the group consisting of surgical intervention, radiation therapy, hormonal therapy, immunotherapy, chemotherapy, cryotherapy, and gene therapy.

164. A method of inhibiting primary tumor cell growth, comprising the steps of:

a) removing tumor cells from a patient,

b) introducing to the removed tumor cells, in a vector, a polynucleotide sequence which encodes a uteroglobin,

c) selecting the removed tumor cells that have incorporated the polynucleotide, and

d) introducing the selected cells into the patient.

165. The method of claim 164, wherein the polynucleotide sequence encodes human uteroglobin.

166. The method of claim 164, wherein the polynucleotide sequence is selected from the group consisting of an RNA, a DNA, a DNA cloned in a DNA vector, and a DNA cloned in a DNA vector and encapsidated in a viral capsid.

167. The method of claim 166, wherein the polynucleotide sequence is a DNA.

168. The method of claim 164, wherein the polynucleotide is administered to the removed tumor cells using cationic lipids, liposomes, or vectors.

169. The method of claim 168, wherein the vector is a viral vector.

170. The method of claim 164, wherein the tumor cells are of a tumor of epithelial cell origin.

171. The method of claim 170, wherein the tumor is selected from the group consisting of a breast, lung, colon, bladder, prostate, gastrointestinal track, endometrium, tracheal-bronchial tract, pancreas, liver, uterus, nasopharynges, and skin tumor.

172. The method of claim 171, wherein the tumor is a prostate

tumor.

173. The method of claim 164 in combination with another treatment.

174. The method of claim 173, wherein the other treatment is selected from the group consisting of surgical intervention, radiation therapy, hormonal therapy, immunotherapy, chemotherapy, cryotherapy, and gene therapy.

175. A method of treating prostate cancer, comprising the steps of:

a) removing cells of the prostate cancer from a patient,

b) introducing to the removed tumor cells, in a vector, a polynucleotide sequence which encodes a uteroglobin,

c) selecting the removed prostate cancer cells that have incorporated the polynucleotide, and

d) introducing the selected cells into the patient.

176. The method of claim 175, wherein the polynucleotide sequence encodes human uteroglobin.

177. The method of claim 175, wherein the polynucleotide sequence is selected from the group consisting of an RNA, a DNA, a DNA cloned in a DNA vector, and a DNA cloned in a DNA vector and encapsidated in a viral capsid.

178. The method of claim 177, wherein the polynucleotide sequence is a DNA.

179. The method of claim 175, wherein the polynucleotide sequence is administered to the removed tumor cells using cationic lipids, liposomes, or vectors.

180. The method of claim 179, wherein the vector is a viral vector.

181. The method of claim 175 in combination with another treatment.

182. The method of claim 181, wherein the other treatment is selected from the group consisting of surgical intervention, radiation therapy, hormonal therapy, immunotherapy, chemotherapy, cryotherapy, and gene therapy.

183. A method for preventing or inhibiting metastasis of a cancer, comprising the steps of:

a) removing cells of the cancer from a patient,

b) introducing to the removed tumor cells, in a vector, a polynucleotide sequence which encodes a uteroglobin,

c) selecting the removed cancer cells that have incorporated the polynucleotide, and

d) introducing the selected cells into the patient.

184. The method of claim 183, wherein the polynucleotide sequence encodes human uteroglobin.

185. The method of claim 183, wherein the polynucleotide sequence is selected from the group consisting of an RNA, a DNA, a DNA cloned in a DNA vector, and a DNA cloned in a DNA vector and encapsidated in a viral capsid.

186. The method of claim 185, wherein the polynucleotide sequence is a DNA.

187. The method of claim 183, wherein the polynucleotide sequence is administered to the removed cancer cells using cationic

lipids, liposomes, or vectors.

188. The method of claim 187, wherein the vector is a viral vector.

189. The method of claim 183, wherein the cancer is a cancer of epithelial cell origin.

190. The method of claim 189, wherein the cancer is selected from the group consisting of breast, lung, colon, bladder, prostate, gastrointestinal track, endometrium, tracheal-bronchial tract, pancreas, liver, uterus, nasopharynges, and skin cancer.

191. The method of claim 190, wherein the cancer is prostate cancer.

192. The method of claim 183 in combination with another treatment.

193. The method of claim 192, wherein the other treatment is selected from the group consisting of surgical intervention, radiation therapy, hormonal therapy, immunotherapy, chemotherapy, cryotherapy, and gene therapy.

194. A method for repairing a dysfunctional gene to prevent or inhibit metastasis of a cancer, comprising the steps of:

a) removing cells of the cancer from a patient,

b) introducing to the removed tumor cells, in a vector, a polynucleotide sequence which encodes a uteroglobin,

c) selecting the removed cancer cells that have incorporated the polynucleotide, and

d) introducing the selected cells into the patient.

195. The method of claim 194, wherein the polynucleotide

sequence encodes human uteroglobin.

196. The method of claim 194, wherein the polynucleotide sequence is selected from the group consisting of an RNA, a DNA, a DNA cloned in a DNA vector, and a DNA cloned in a DNA vector and encapsidated in a viral capsid.

197. The method of claim 196, wherein the polynucleotide sequence is a DNA.

198. The method of claim 194, wherein the polynucleotide sequence is administered to the removed cancer cells using cationic lipids, liposomes, or vectors.

199. The method of claim 198, wherein the vector is a viral vector.

200. The method of claim 194, wherein the cancer is a cancer of epithelial cell origin.

201. The method of claim 200, wherein the cancer is selected from the group consisting of breast, lung, colon, bladder, prostate, gastrointestinal track, endometrium, tracheal-bronchial tract, pancreas, liver, uterus, nasopharynges, and skin cancer.

202. The method of claim 201, wherein the cancer is prostate cancer.--

REMARKS

Claims 74-202 are pending in the present application. The amendments do not add any new matter under 35 U.S.C. §132. Basis for the new claims can be found in the original specification as follows:

"tumorigenesis" (page 45, line 2);

"tumor of epithelial cell origin" (page 1, lines 24-25);

"*in vivo* administration of a polynucleotide in a vector" (page 70, lines 10-11);

"encodes a sequence" (page 69, lines 2, 11, and 15);

"uteroglobin" (page 3, line 1; page 9, line 17; and page 11, line 4);

"human uteroglobin" (page 2, line 21; page 3, line 1; page 46, line 7; and page 48, lines 9-11);

"an RNA,...viral capsid" (page 68, lines 11-12 and 15-18);

"DNA" (Page 68, line 19);

"viral vector" (page 70, lines 10-11);

"inhibits invasion" (page 19, line 26; page 22, line 27);

"tumor of the breast...skin" (page 58, lines 23-26);

"tumor of the prostate" (page 2, line 4; page 3, lines 2-3; page 7, line 7; and page 58, lines 26-27);

"administered in combination with another treatment" (page 10, lines 4-5);

"surgical intervention,...gene therapy" (page 10, lines 6-9);

"primary tumor cell growth" (page 4, lines 16-17; and page 19, lines 3-8);

"primary tumor from damaging surrounding lymph or circulatory systems" (page 4, lines 21-22);

"shed cells" (page 4, lines 19-20, 23, and 27);

"shed cells are prevented from entering into the lymph or circulatory systems" (page 4, lines 23-24);

"interfering with invasion of a local extra-cellular matrix by

tumor cells" (page 59, lines 27-28);

"tumor-induced angiogenesis" (page 20, line 2);

"inhibiting or decreasing the activity of metalloproteinases required for degradation of an extra cellular matrix" (page 85, lines 3-10);

"treating prostate cancer" (page 1, lines 11-13; and page 10, lines 1-3);

"preventing or inhibiting metastasis of a cancer of epithelial cell origin" (page 2, lines 1-4);

"repairing a dysfunctional gene to prevent or inhibit metastasis" (page 70, lines 16-18)

"removing cells...into the patient" (page 67, lines 25-28; and page 68, lines 1-6);

"cationic lipids,...vector" (page 69, lines 26-28).

Accordingly, entry of the amendments prior to examination of the application is respectfully requested.

CONCLUSION

In view of the foregoing, Applicants respectfully request the Examiner to allow all claims pending in this application. If the Examiner has any questions or wishes to discuss this matter, the Examiner is welcomed to telephone the undersigned attorney.

Respectfully submitted,
NATH & ASSOCIATES PLLC

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